

July 25, 2008

Mr. Randall K. Edington
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SUBJECT: PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 –
PROPOSED ALTERNATIVE COURSE OF ACTION, GENERIC LETTER
2008-01, “MANAGING GAS ACCUMULATION IN EMERGENCY CORE
COOLING, DECAY HEAT REMOVAL, AND CONTAINMENT SPRAY
SYSTEMS” (TAC NOS. MD7857, MD7858, AND MD7859)

Dear Mr. Edington:

On January 11, 2008, the Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2008-01, “Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems” (Agencywide Documents Access and Management System (ADAMS) Accession No. ML072910759). The GL requested licensees to submit information to demonstrate that the emergency core cooling, decay heat removal, and containment spray systems (hereinafter referred to as the “subject systems”) are in compliance with the current licensing and design bases and applicable regulatory requirements, and that suitable design, operational, and testing control measures are in place for maintaining this compliance.

In accordance with Section 50.54(f) of Title 10 of the *Code of Federal Regulations* (10 CFR), GL 2008-01 required that each licensee submit a written response providing the requested information within 9 months (hereinafter referred to as the “9-month submittal”) of the date of the GL. The GL stated that, if a licensee cannot meet the requested 9-month submittal date, the licensee shall provide a response within 3 months (hereinafter referred to as the “3-month submittal”) of the date of the GL, describing the alternative course of action it proposes to take, including the basis for the acceptability of the proposed alternative course of action.

By letter dated May 9, 2008, Arizona Public Service Company (APS), the licensee, submitted a 3-month response to GL 2008-01 for Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3. The NRC staff’s assessment of the licensee’s response is contained in Enclosure 1.

The NRC staff reviewed the licensee’s proposed alternative course of action and the associated basis for acceptance and concluded that for PVNGS, Units 1, 2, and 3, with the exception of the clarifications and associated requests discussed in Enclosure 1, they are acceptable. This letter allows the licensee to implement its proposed alternative course of action provided that implementation is consistent with the clarifications and associated requests discussed in Enclosure 1.

R. Edington

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If you have any questions regarding this letter, please feel free to contact Michael T. Markley at (301) 415-5723.

Sincerely,

/RA/

Mohan C. Thadani, Acting Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos.: STN 50-528, STN 50-529
and STN 50-530

Enclosure:
As stated

cc w/encl: See next page

R. Edington

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Palo Verde Nuclear Generating Station

7/2/2008

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EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
OF ARIZONA PUBLIC SERVICE COMPANY'S 3-MONTH RESPONSE
TO GENERIC LETTER 2008-01
PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3
DOCKET NOS. STN 50-528, STN 50-529, AND STN 50-530

Background

On January 11, 2008, the Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML072910759). The GL requested licensees to submit information to demonstrate that the emergency core cooling, decay heat removal, and containment spray systems (hereinafter referred to as the "subject systems") are in compliance with the current licensing and design bases and applicable regulatory requirements, and that suitable design, operational, and testing control measures are in place for maintaining this compliance. Specifically, the GL requested licensees to provide: (1) a description of the results of evaluations that were performed in response to the GL; (2) a description of all corrective actions that the licensee determined were necessary; and (3) a statement regarding which corrective actions were completed, the schedule for completing the remaining corrective actions, and the basis for that schedule.

In accordance with Section 50.54(f) of Title 10 of the *Code of Federal Regulations* (10 CFR), GL 2008-01 required that each licensee submit the requested information within 9 months (hereinafter referred to as the "9-month submittal") of the date of the GL. The GL also stated that if a licensee cannot meet the requested 9-month response date, the licensee is required to provide a response within 3 months (hereinafter referred to as the "3-month submittal") of the date of the GL, describing the alternative course of action it proposes to take, including the basis for the acceptability of the proposed alternative course of action.

Licensee's Proposed Alternative Course of Action

By letter dated May 9, 2008, Arizona Public Service Company (APS), the licensee, submitted a 3-month response to GL 2008-01 for Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3. APS indicated that for PVNGS, the only GL 2008-01 reporting request that would not be completed by the requested response time is walkdowns of some segments of piping of the subject systems, including the emergency core cooling system (ECCS), shutdown cooling system (SCS), and containment spray system (CSC). The licensee cannot complete the walkdowns because portions of the subject systems are inaccessible during power operation for one or more of the following reasons: (1) restrictions on removal of insulation from piping while the systems are required to be operable in both the containment and auxiliary building; (2) restrictions on erection of scaffolding and providing shielding within the containment around operating systems; and (3) prolonged containment entries and high radiation exposure rates during power operation.

ENCLOSURE

The licensee also stated that it would complete and submit a design evaluation of the ECCS, SCS and CSS during the 9-month time frame prescribed in the GL and that this evaluation will review available licensing and design documentation, design modifications, and any previous design level walkdowns performed on the three PVNGS units. Several walkdowns have been performed in each of three units because of internal and industry operating experience issues. In addition, modifications have been implemented to add venting locations. These walkdowns were performed well before the issuance of GL 2008-01 and, therefore, did not consider all technical issues discussed in the GL and its attached technical considerations document.

As an alternative course of action, the licensee's letter dated May 9, 2008, listed the following commitments:

- (1) Perform physical design verification walkdowns of the ECCS, SCS and CSS to validate the as-built conditions for Unit 1 for the GL 2008-01 prior to startup from Unit 1 refueling outage (1RFO14) that is planned for November 30, 2008.
- (2) Perform physical design verification walkdowns of the ECCS, SCS and CSS to validate the as-built conditions for Unit 3 for the GL 2008-01 prior to startup from Unit 3 refueling outage (3RFO14) that is planned for May 31, 2009.
- (3) Perform physical design verification walkdowns of the ECCS, SCS and CSS to validate the as-built conditions for Unit 2 for the GL 2008-01 prior to startup from Unit 2 refueling outage (2RFO15) that is planned for November 30, 2009.
- (4) Submit to the NRC any required additional corrective actions resulting from performing the design validation walkdowns for Unit 1 within 90 days after completion of the 1RFO14.
- (5) Submit to the NRC any required additional corrective actions resulting from performing the design validation walkdowns for Unit 3 within 90 days after completion of the 3RFO14.
- (6) Submit to the NRC any required additional corrective actions resulting from performing the design validation walkdowns for Unit 2 within 90 days after completion of the 2RFO15.

NRC Staff Assessment

The NRC staff finds that, with the exception of the clarifications and associated requests discussed below, that the licensee's proposed alternative course of action is acceptable based on the above-described operating experience and corrective actions associated with managing gas accumulation at PVNGS.

The NRC staff notes the following examples where the licensee's 3-month submittal dated May 9, 2008, does not clearly describe the content and/or schedule for the 9-month submittals:

- (1) Although the licensee plans to include the results of its evaluation of licensing and design documentation, and design modifications in its 9-month response, it does not

explicitly state that it will review system operating and testing procedures, and include the results of the review of procedures and associated impacts in its 9-month response.

- (2) The licensee plans to report in its 9-month response the walkdown evaluations that are based on previous design level walkdowns performed on the three PVNGS units. For accessible portions of the subject systems, it unclear whether this previous walkdown information will be sufficient for GL 2008-01 considering design modifications that may have occurred and if not, whether the additional walkdowns will be completed, evaluated, and included in the 9-month initial submittal.
- (3) Although the licensee commits to provide its 9-month supplemental response within 90 days following completion of refueling outage 1RFO14, 2RFO15, and 3FRO14 for Units 1, 2, and 3, respectively, the submittal does not specifically state that these are the first refueling outages that begin after the 9-month date of October 11, 2008.

The NRC staff requests that the information to be provided, as requested in the GL, be submitted as follows:

- (1) 9-Month Initial Submittal - For the portions of the subject systems that are accessible prior to refueling outage 1RFO14, 2RFO15, and 3FRO14 for PVNGS, Units 1, 2, and 3, respectively, provide all GL requested information to the NRC by October 11, 2008.
- (2) 9-Month Supplemental (Post-Outage) Submittal - Except for the long-term items described below, provide all remaining GL requested information for the subject systems to the NRC within 90 days following completion of refueling outage 1RFO14, 2RFO15, and 3FRO14 for PVNGS, Units 1, 2, and 3, respectively.

For each of these two submittals (the 9-month initial and supplemental submittals), and consistent with the information requested in the GL, the licensees should provide: (1) a description of the results of evaluations that were performed in response to the GL; (2) a description of all corrective actions that the licensee determined were necessary; and (3) a statement regarding which corrective actions were completed, the schedule for completing the remaining corrective actions, and the basis for that schedule.

The NRC staff noted that the licensee's submittal dated May 9, 2008, did not mention other potential long-term actions that are identified in the GL. For instance, the industry is assessing whether it is necessary to perform pump testing to determine the allowable limits on ingested gas volume in pump suction piping, as well as, whether analysis development is needed to assess gas transport in the subject system piping as a function of system flow. It is unlikely this industry effort will be complete for the 9-month initial or supplemental submittals. Further, technical specification changes may be necessary to reflect the improved understanding achieved during response to the GL, but these cannot be fully developed for the 9-month initial or supplemental submittals. A Technical Specifications Task Force traveler may provide a generic example that can be adopted by licensees. The NRC staff requests that the licensee address in its 9-month submittal how it plans to track such long-term actions (e.g., Corrective Action Program and/or commitment tracking). The NRC plans to perform follow-up inspections of licensee responses to GL 2008-01 at all plants using a Temporary Instruction inspection procedure.